

REMARKS

In response to the Office Action dated December 19, 2001, claims 45-51, 54, 55 and 57, directed to the non-elected invention, are canceled, and claims 1, 52 and 56 are amended. Claims 1-44, 52, 53 and 56 are now active in this application. No new matter has been added.

The indication that claims 5, 6, 9, 20, 21, 25-27, 31, 34, 38, 39 and 42 are allowable is acknowledged and appreciated.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 102 AND § 103

Claims 1, 2, 15-17, 22-24, 28, 32, 35 and 56 are rejected under 35 U.S.C. §102(b) as being anticipated by Nagata (U.S. Patent No. 5,282,026).

Claims 3, 4, 7, 8, 10-14, 36, 37, 40 and 41 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nagata in view of Saitoh et al. (U.S. Patent No. 5,751,854), relied upon by the Examiner as disclosing, *inter alia*, using ratio of the number of color pixels to that of the entire pixels in the block to determine whether a block is a particular color block, the thresholds differ from each other, designating a block in certain area and using saturation data of color pixel for discriminating a particular color area that the threshold is different from those of other areas.

Claims 18 and 19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nagata in view of Suzuki (U.S. Patent No. 5,296,939) relied upon by the Examiner as disclosing using ratio of number of color blocks to that of the blocks to determine whether the image is color image.

Claims 29, 30, 32, 33, 52 and 53 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nagata in view of Koizumi et al. (U.S. Patent No. 5,287,204) relied upon by the Examiner as disclosing, *inter alia*, excluding or correcting a monochromatic block in certain

portion of image from the determination, and to print either color printing or monochrome printing based on the color discrimination result.

The rejections are respectfully traversed.

As to independent claims 1, 52 and 56, the Examiner maintains that Nagata discloses (claims 1 and 52) means for or (claim 56) step of dividing the image into a plurality of blocks and (claims 1 and 52) counting means for or (claim 56) step of counting the number of color pixels *for each block*. However, this is incorrect.

More specifically, Nagata does not disclose or suggest to divide the image into a plurality of blocks and then count the number of color pixels *for each block*. What Nagata discloses is determining whether or not there are a plurality of continuous color pixels occurring in each line of pixels by detecting when the number of continuous color pixels occurring in a line of pixels is at least equal to a preset threshold. Such occurrence is called a “color block” and the size of the color block is the number of continuous color pixels occurring in the line of pixels at the time the chain of continuous color pixels is broken (see column 4, lines 23-44). Thus, in Nagata, a color *block* is determined by counting the number of continuous color pixels that are equal to or greater than a preset threshold number of continuous color pixels.

Clearly, counting the number of color pixels *for each block* (of the plurality of divided blocks) recited in the claims is inherently subsequent to establishing a plurality of divided blocks. However, in Nagata, as the color blocks are established by counting the number of pixels, the establishing of divided blocks is subsequent to counting the number of pixels. Further evidence of the fact that there is no initial dividing of the image into a plurality of blocks in Nagata is that there is no set size for each color block and the size of a color block is determined after counting the color pixels (see different size color blocks of Fig. 4).

In Nagata, if the number of continuous color pixels occurring in a line of pixels is less than the preset threshold, the continuous color pixels are not a color block, and Nagata has no disclosure of what to call such occurrence, but a reasonable name would be a “*non-color block*”. Thus, when there is an occurrence of a number of continuous color pixels occurring in a line of pixels that is less than the preset threshold, there will be color pixels in such non-color block, but no count of the number of color pixels in such non-color block will exist as the counter 8 of Fig. 9 will be immediately cleared when the output of OR gate 7 goes low, indicating that no color pixel detection signal is outputted (see Fig. 9 and column 7, lines 3-7). Assume, for example, a line of pixels where each pixel in the line alternates between a color pixel and a non-color pixel. In such case, the non-color block will be all the pixels of that line. Furthermore, while each color pixel encountered will initially cause counter 8 to count via the occurrence of the output of OR 7 going high, the next pixel will cause the counter 8 to immediately reset (losing the count) via the occurrence of the output of OR 7 going low; i.e., a non-color pixel. Thus, while the entire line will be a non-color block and half the pixels of the line will be color pixels, there, in fact, will be no count of the number of color pixels in such non-color block.

In view of the above, there can be no doubt that Nagata does not perform the functions and steps recited in claims 1, 52 and 56. Thus, independent claims 1, 52 and 56, as well as dependent claims 2-44 and 53, are patentable over Nagata, even when considered in view of Saitoh et al., Suzuki and Koizumi et al.

Applicants would also like to note that it is well established in MPEP § 2143.01, last paragraph, that the proposed modification cannot change the principle of operation of a reference. “If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teaching of the

references are not sufficient to render the claims prima facie obvious." Additionally, the second to the last paragraph in MPEP § 2143.01 states that the **"proposed modification cannot render the prior art unsatisfactory for its intended purpose"**.

In this regard, it should be noted that many of the modifications of Nagata suggested by the Examiner cannot be supported, as they would change the principle of operation of Nagata. For example, applying the teaching of Saitoh et al. as to using the ratio of the number of color pixels to that of the entire pixels in a block to determine whether the block is a particular color block materially alters the manner in which Nagata functions since a color block inherently contains all color pixels. Furthermore, while Nagata refers to judging the type of color of a document, a person of ordinary skill in the art, after reviewing the reference, would understand that Nagata has no disclosure with regard to determining and outputting an indication that a color block is of a particular color, but rather discloses judging in real time, without using any image memory, whether or not a document is (generically) a color document (see output of comparator 15). In view of the manner in which the arrangement of Nagata is disclosed as operating to output from comparator 15 that a result of judgment is "color document", it is certainly unclear what value the ratio of the number of color pixels to that of the entire pixels for determining whether a block is a particular color block would be. Consequently, to change the arrangement of Nagata to employ the ratio taught in Saitoh et al. would materially, and impermissibly, alter the manner in which Nagata functions.

Finally, the sixth paragraph of 35 U.S.C. § 112 permits an element in a claim for a combination to be expressed as a means or step for performing a specified function without recital of structure, material, or acts in support thereof, and such claim shall be construed to

cover the corresponding structure, material, or acts described in the specification and equivalents thereof. See *In re Donaldson*, 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994).

Thus, even if it were somehow presumed that Nagata does perform the functions and steps recited in claims 1, 52 and 56, surely, given the above described differences, it is clear to a person of ordinary skill in the art that Nagata does not describe any structure, material, or acts that can be reasonably interpreted as being the same or equivalent to the corresponding structure, material, or acts described in the present specification for performing the recited functions.

At any rate, to expedite prosecution, claims 1, 52 and 56 are amended to more clearly delineate subject matter that is patentable over the applied prior art references. More specifically, each of amended claims 1, 52 and 56 requires that the image is divided into a *predetermined number of a* plurality of blocks. Clearly, Nagata neither discloses nor suggests dividing the image into a *predetermined number of a* plurality of blocks since the number of color blocks (and non-color blocks) is dependent upon the number of continuous color pixels occurring in each line that are equal to or greater than the preset threshold and this number can vary from line to line. Also, the number of color blocks (and non-color blocks) is not known, if it is ever known at all, until all the pixels occurring in each pixel line of the document are tested. However, such number of color blocks (and non-color blocks) will not be known when comparator 15 outputs a judgment of a color document before all pixels in the document are tested.

CONCLUSION

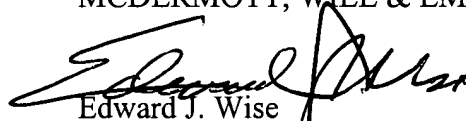
Accordingly, it is urged that the application, as now amended, is in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues

that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Please amend claims 1, 52 and 56 as follows:

1. (Amended) An image processing apparatus including:

a first determination means for determining whether or not a pixel included in an image is a color pixel;

means for dividing the image into a predetermined number of a plurality of blocks;

counting means for counting the number of color pixels for each block; and

second determination means for determining whether or not the image is a color image based on the counting result by the counting means.

52. (Amended) An image forming apparatus including:

means for inputting an image;

first determination means for determining whether or not a pixel included in the input image is a color pixel;

means for dividing the image into a predetermined number of a plurality of blocks;

counting means for counting the number of color pixels for each block;

second determination means for determining whether or not the image is a color image based on the counting result by the counting means; and

printing means performing color-printing in case the second determination means determines the image as a color image, and performing monochrome-printing in case the second determination means determines the image as a non-color image.

56. (Amended) Color image determination method including:

step of determining whether or not pixels included in an image are color pixels,
respectively;

step of dividing the image into a predetermined number of a plurality of blocks;

step of counting the number of color pixels for each block; and

step of determining whether the image is a color image based on the counting
result.